



Department of Psychiatry
Neuropsychiatry Program

Director of Neuropsychology

Response to the Mayberg and Evans Report

September 28, 2007

Fred Duchardt, Esq.

Dear Mr. Duchardt:

My response to the Evans and Mayberg report can be brief, as **Figure 1** should replace the proverbial 10,000 words. It shows Ms. Montgomery compared to the means and standard deviations (SDs) as originally calculated for Figure 4 of my report, and using Evans' recommended values.¹ As you see, while 5 regions that were significantly elevated by the 1SD criterion no longer pass that threshold, but the other 17 regions meet the 1SD cutoff and, of these, 15 meet the 2SDs cutoff. This is a much larger number of

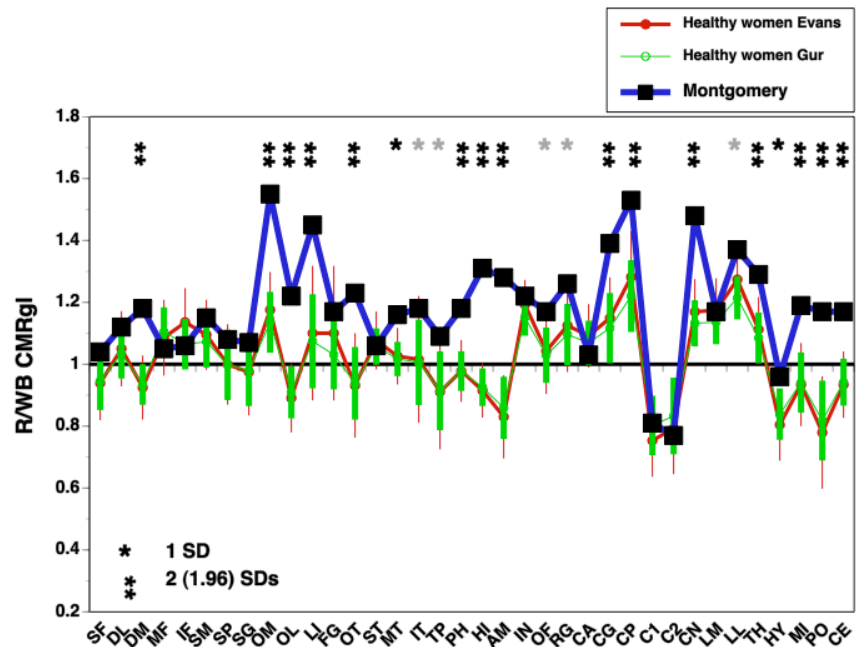


Figure 1. Values for region to whole-brain (R/WB) ratios for female controls calculated based on raw metabolic rates as supplied to Dr. Evans (red line), the original values in Gur's Figure 4 (green), and Ms. Montgomery (Blue). Stars indicate significance for one (single star) or 2 SDs (2 stars; I used the more precise 1.96 SDs, but nothing changes if we do 2SDs allowing 0.05 error for estimating the SD). Faded stars are regions that passed the 1SD criteria in Gur's Figure 4 but no longer significant with the new calculation.

¹ Each region divided by whole-brain metabolism. I never used the average of 35 (or 36) regions either for Ms. Montgomery or for the controls, I do not know where they got the idea that this is what we did. It would be wrong to do because different regions have different volumes and their average has no meaning without volume correction. I am also puzzled by why they did not find the hypothalamus. I worked from the same file I sent them in my email of September 19, 2007 and it contained the 36 regions.

regions than would be expected by chance (which is 5% or ~2 out of the 36 regions).

Thus, the regions that were flagged as clinically significant in my report remain so and most of these values even meet the absurd criterion of 2SDs (which I have never seen applied in the clinical practice of neuropsychology, or any medical specialty of which I am aware²). Therefore, there is little if anything that needs to be changed in my conclusions and Ms. Montgomery's PET scan is abnormal.

Sincerely,

Ruben C. Gur, Ph.D.

² The distinction I testified to between statistical significance and clinical significance is usually taught quite early in an Introductory Statistics course. At the Department of Biostatistics at Penn this distinction is already emphasized in the first lecture (Prof. Warren B. Bilker, personal communication, September 26, 2007.)